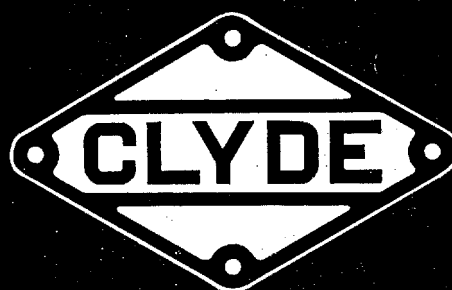


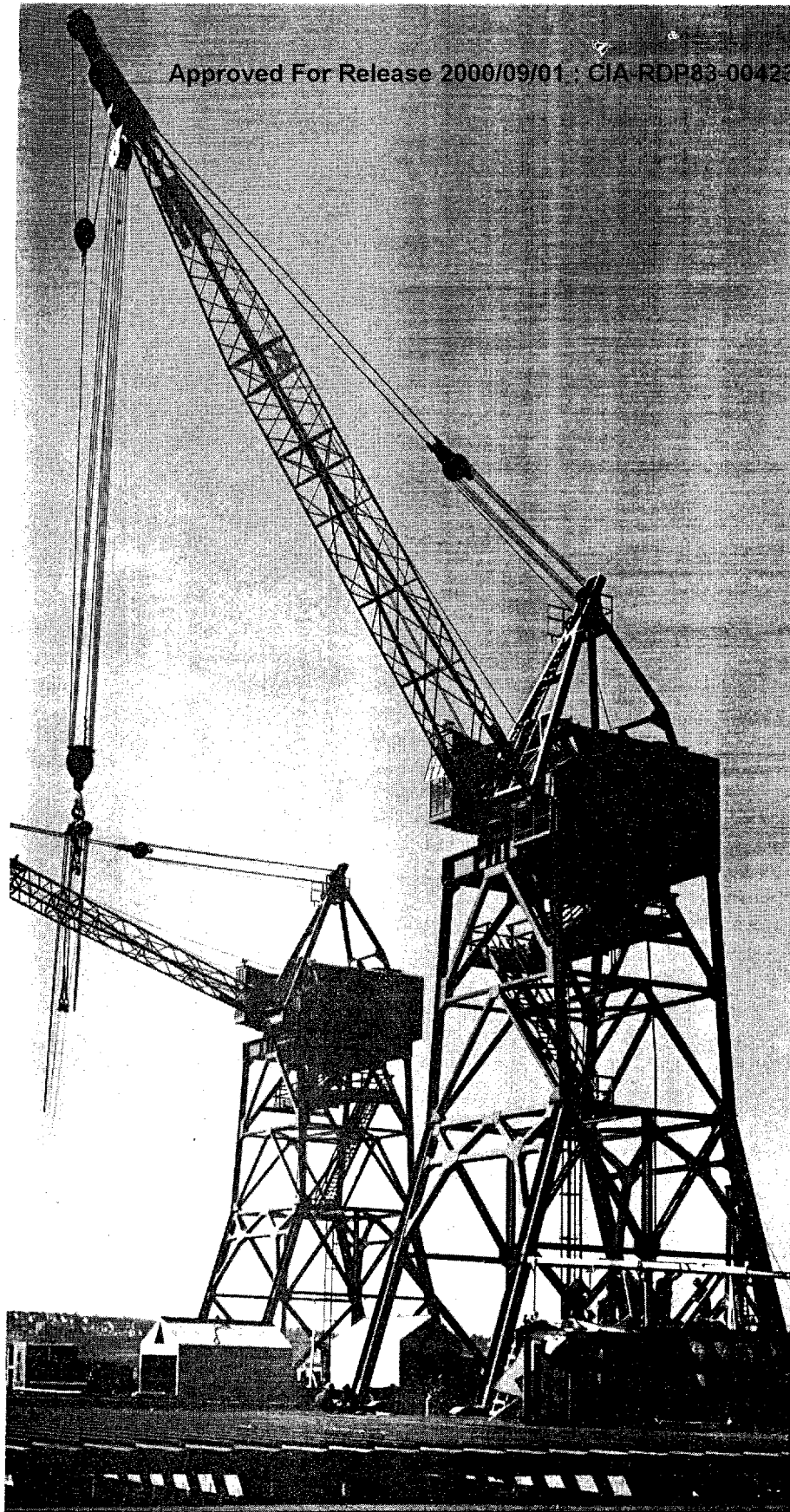
Clyde

INTEL

unclassified

WHIRLEYS





## **BULLETIN M-12**

### **INTRODUCTION**

Clyde Whirleys are traveling, full-revolving, long reaching, heavy duty machines specially engineered for rapid and efficient handling of materials by bucket, hook or magnet.

It is the intent of this bulletin to illustrate some of the many applications of Clyde Whirleys and to point out the advantages of the Clyde design. Years of developing and perfecting . . . years of careful analyzing of the customer's problems have resulted in a line of Whirleys of superior engineering principles with sound and practical construction features.

Clyde Whirleys are manufactured in nine standard sizes with lifting capacities up to 146,600 pounds at 40 foot radius or 27,700 pounds at 150 foot radius. The chart on page 17 lists normal capacities of standard models at various boom radius.

Our staff of skilled technicians will gladly make recommendations and provide complete specifications for the Whirley best suited for your particular needs. For your convenience a page is provided listing the information required for a quotation.

*We reserve the right to make any changes in the details of construction and design of any equipment shown in this bulletin, which in our opinion will improve it, regardless of description and illustrations used.*

# **CLYDE IRON WORKS, INC.**

**DULUTH, MINNESOTA**

*Subsidiary of Barium Steel Corporation*

**STARTS A JOB...**



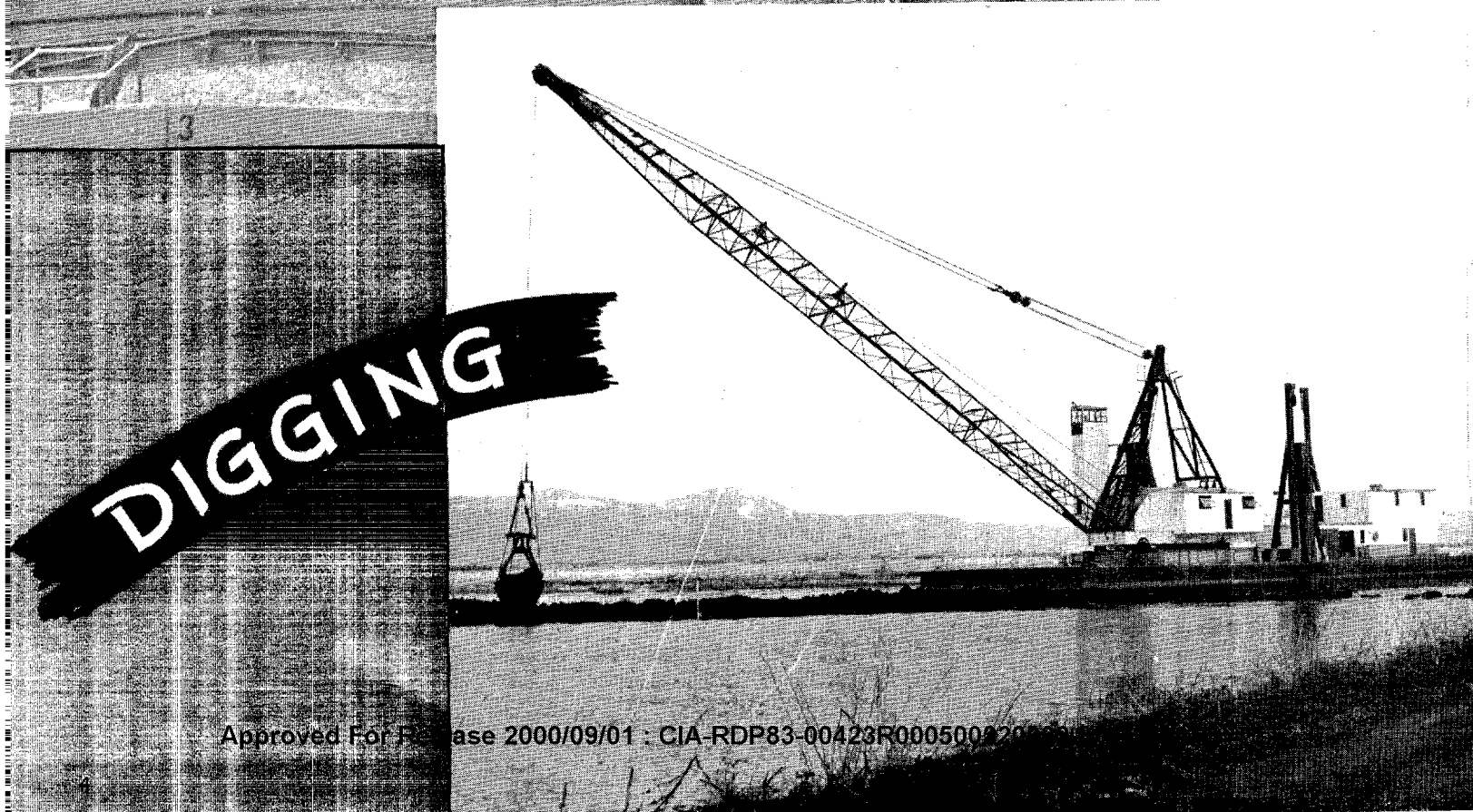
**...AND FINISHES IT**



REHANDLING

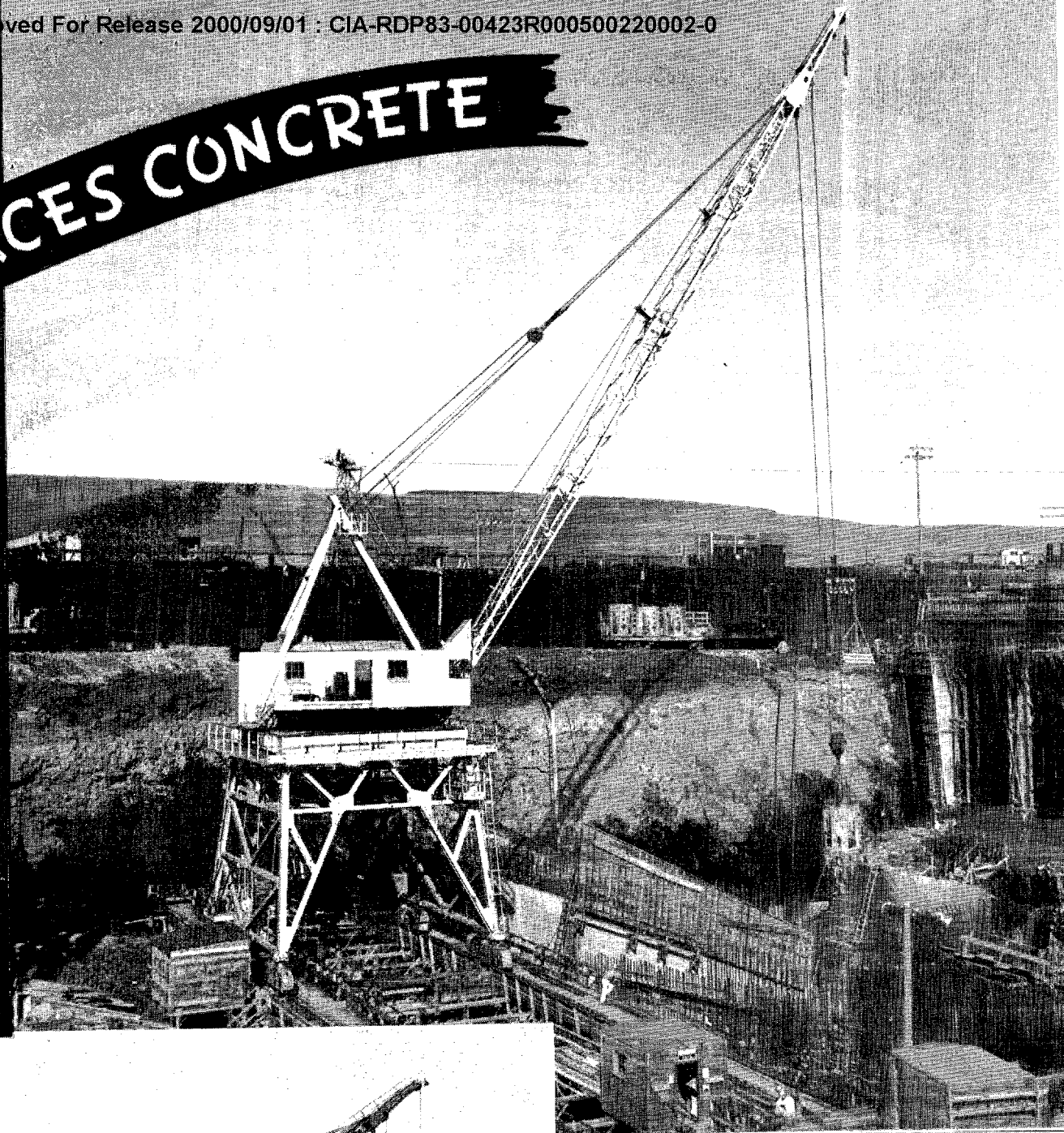


DIGGING





**PLACES CONCRETE**



**HANDLES FORMS**



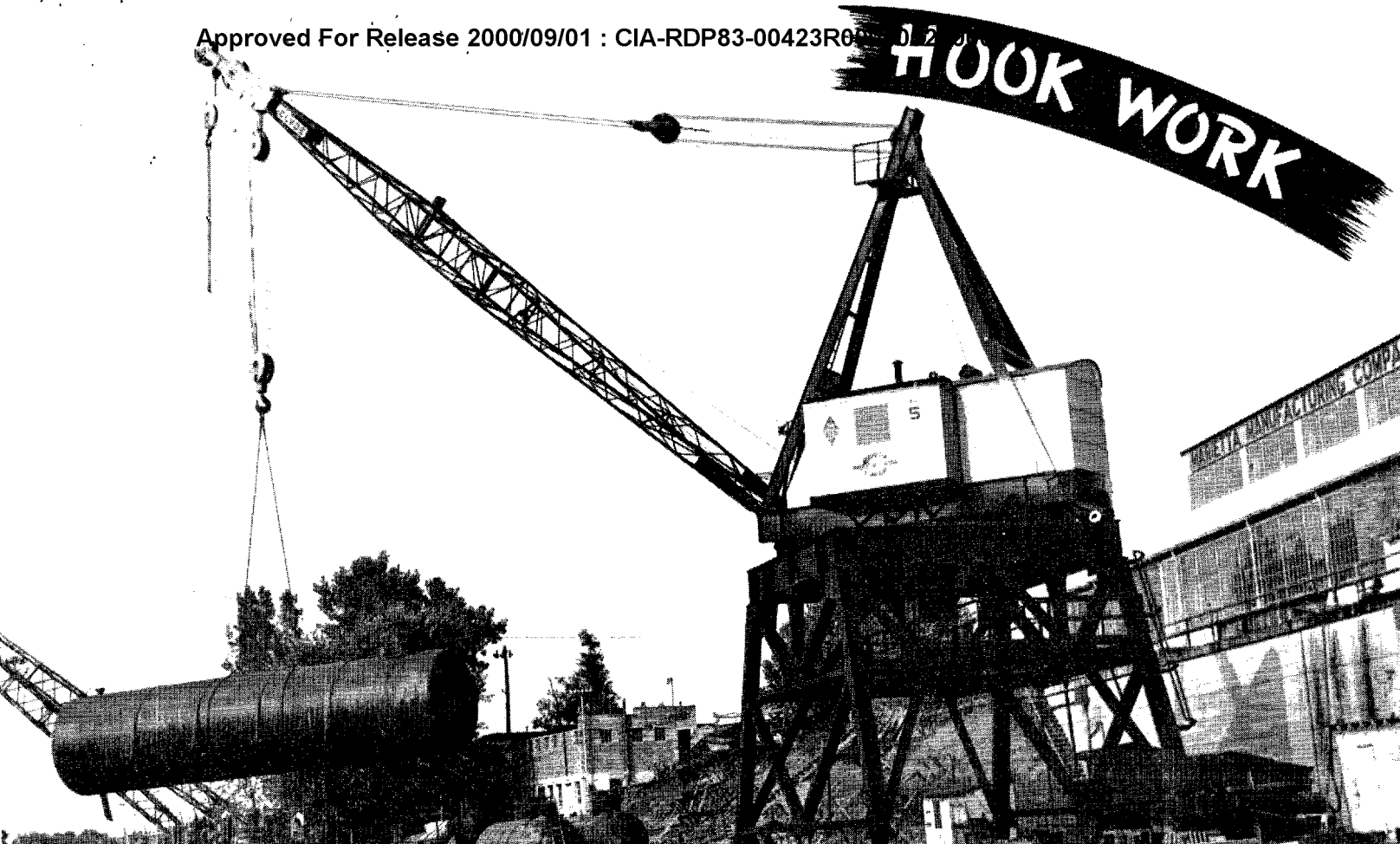
ON LAND



ON SEA



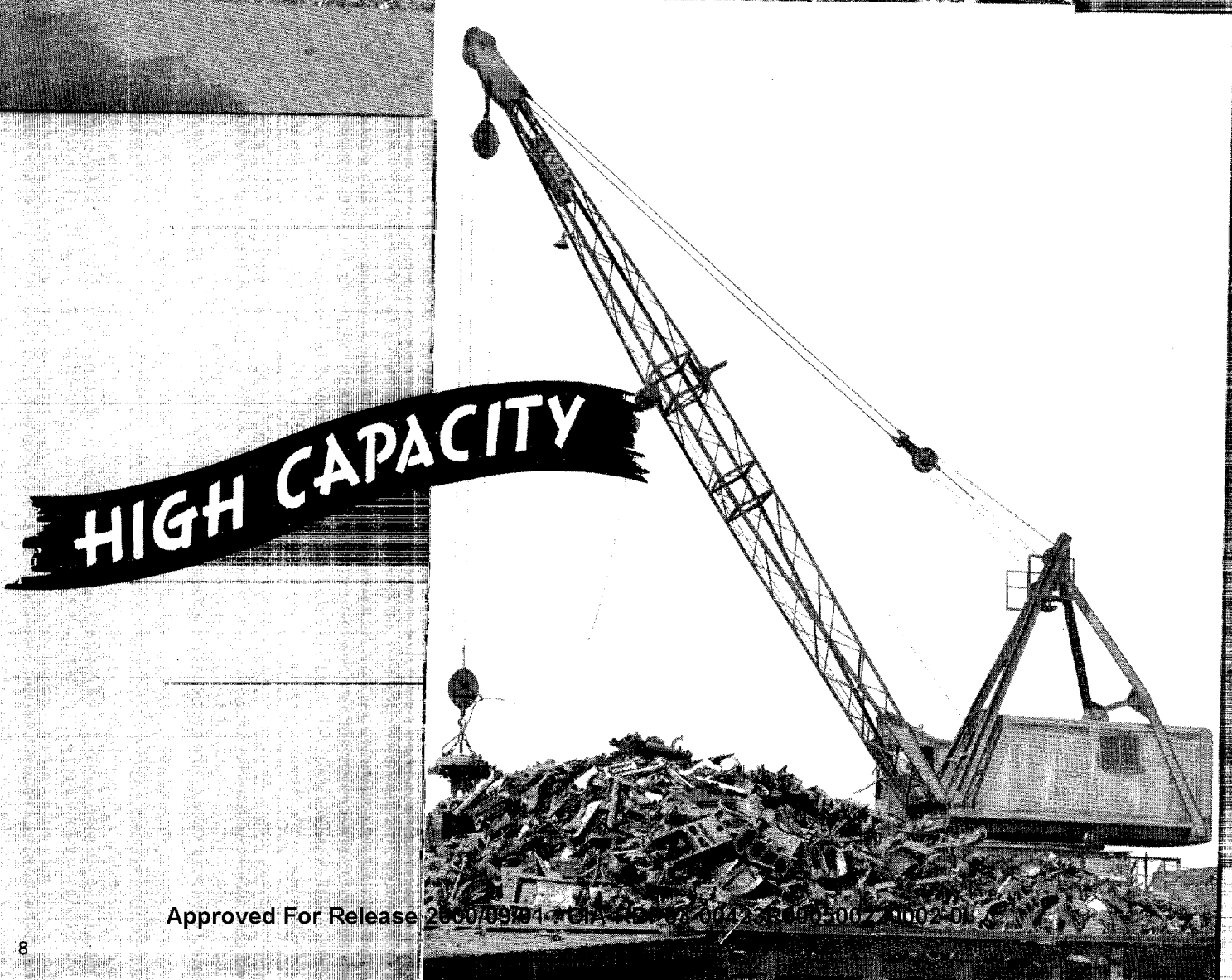
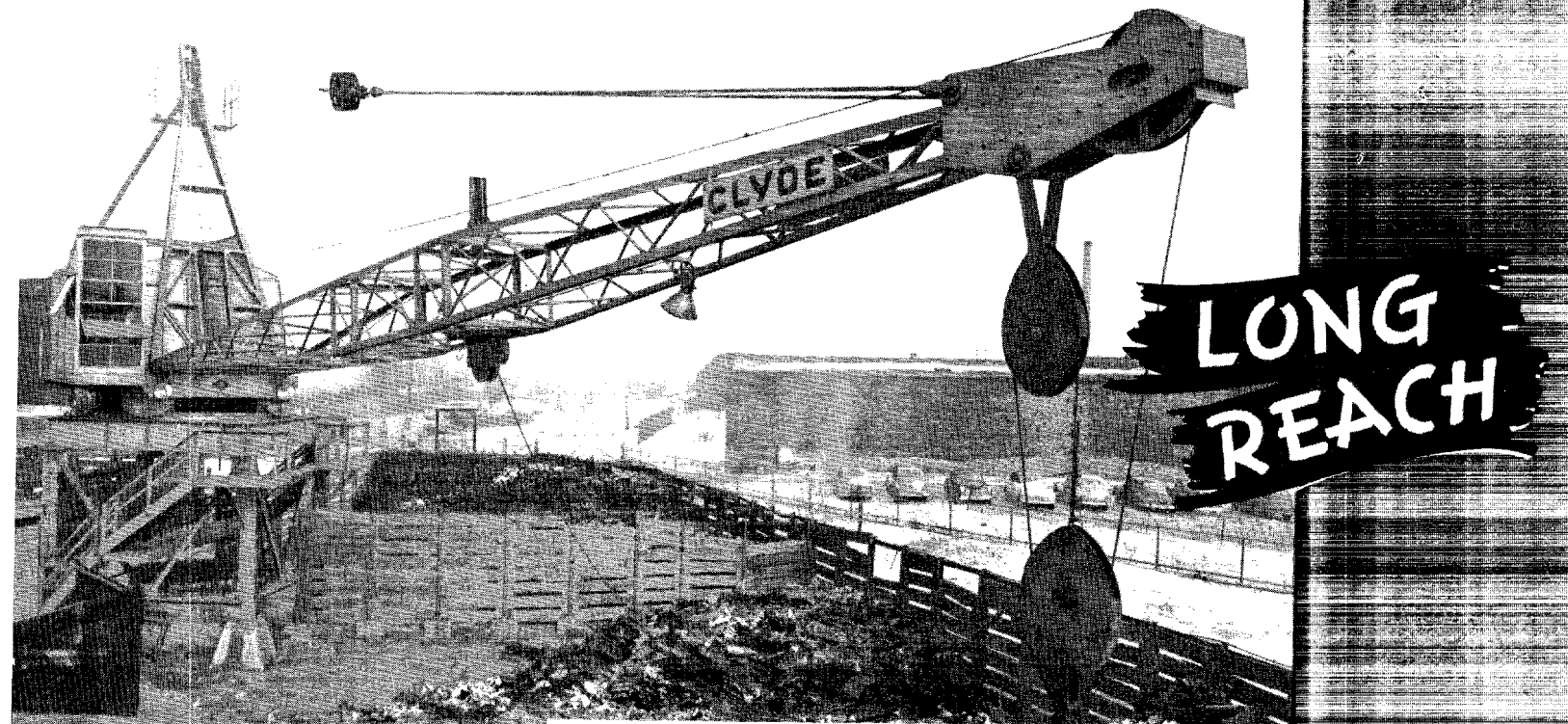
1 2 3  
**HOOK WORK**



**MAGNET WORK**









UNLOADS BARGES



UNLOADS CARS



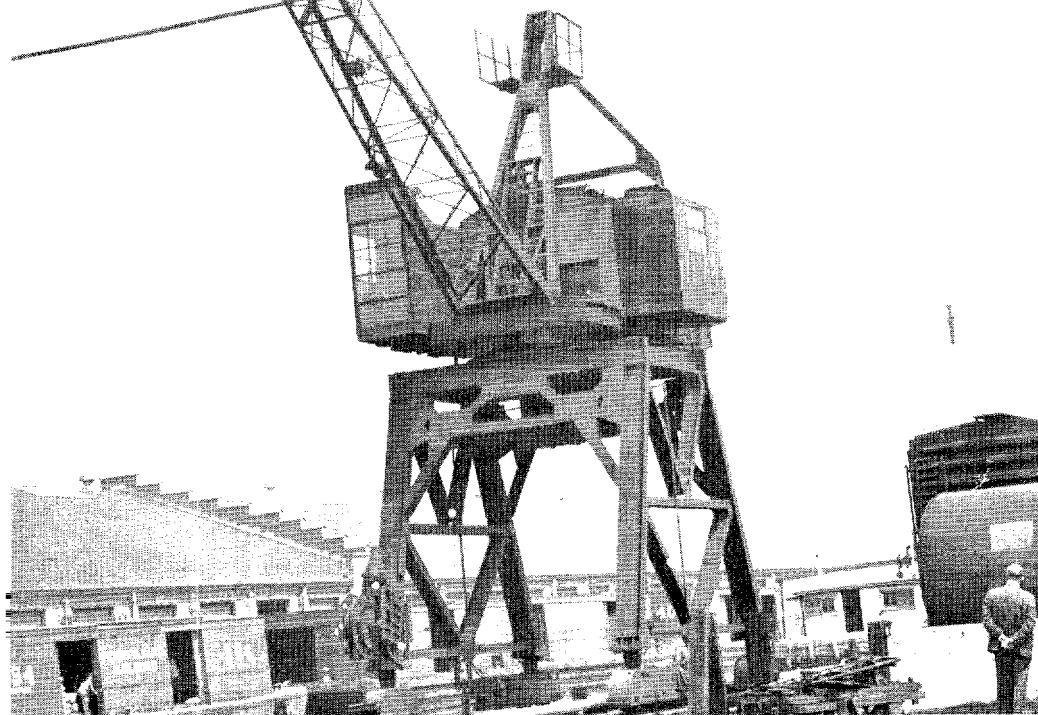
M.P.  
67



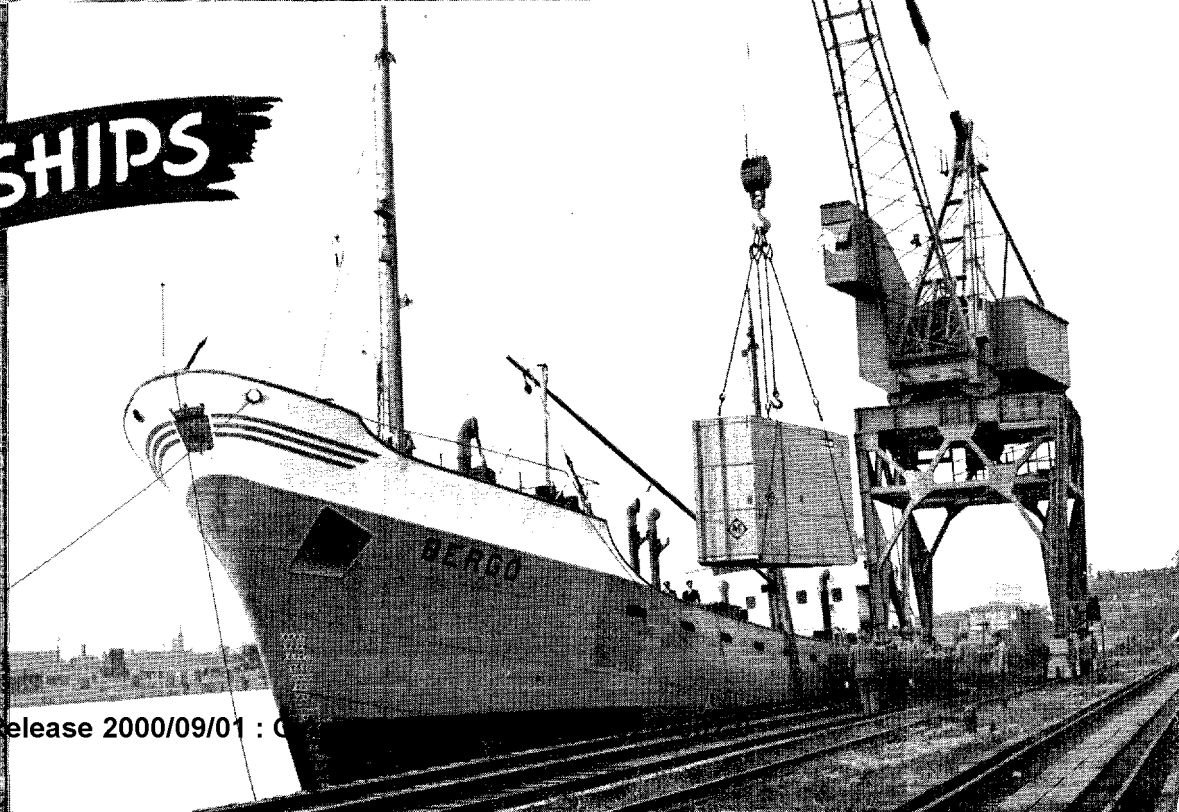
417-1-80

GS

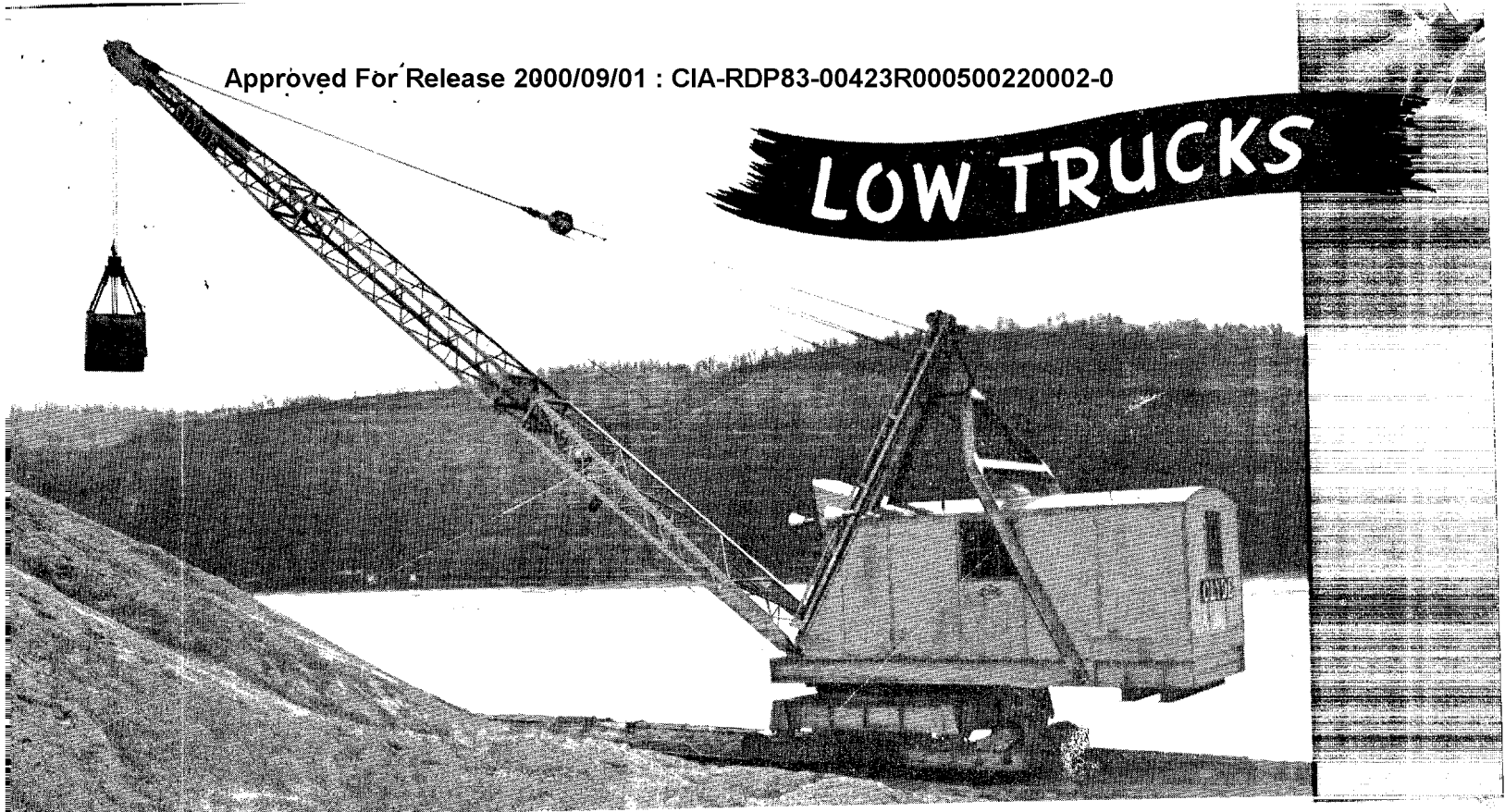
# LOADS TRAINS



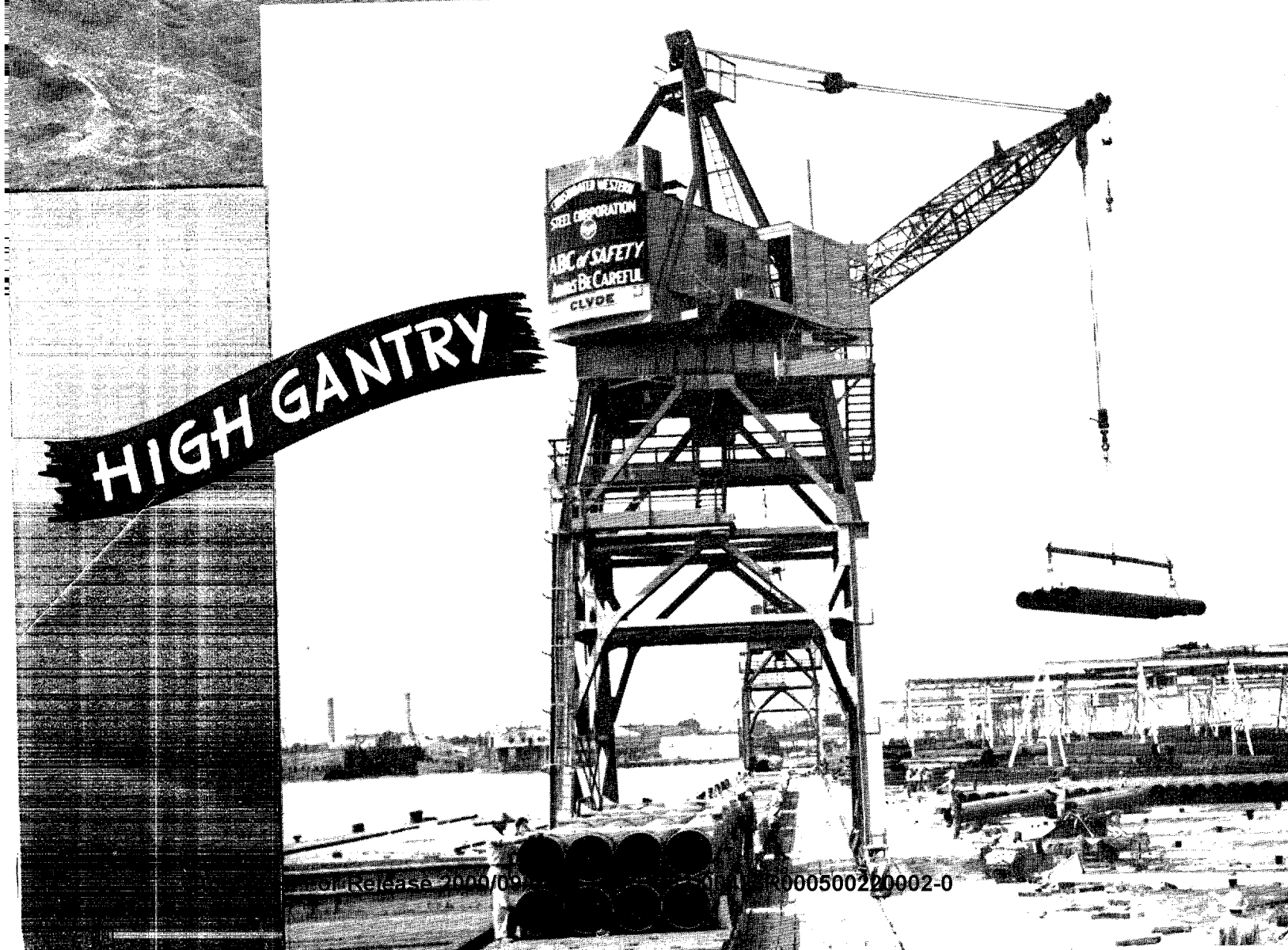
# LOADS SHIPS



# LOW TRUCKS



# HIGH GANTRY



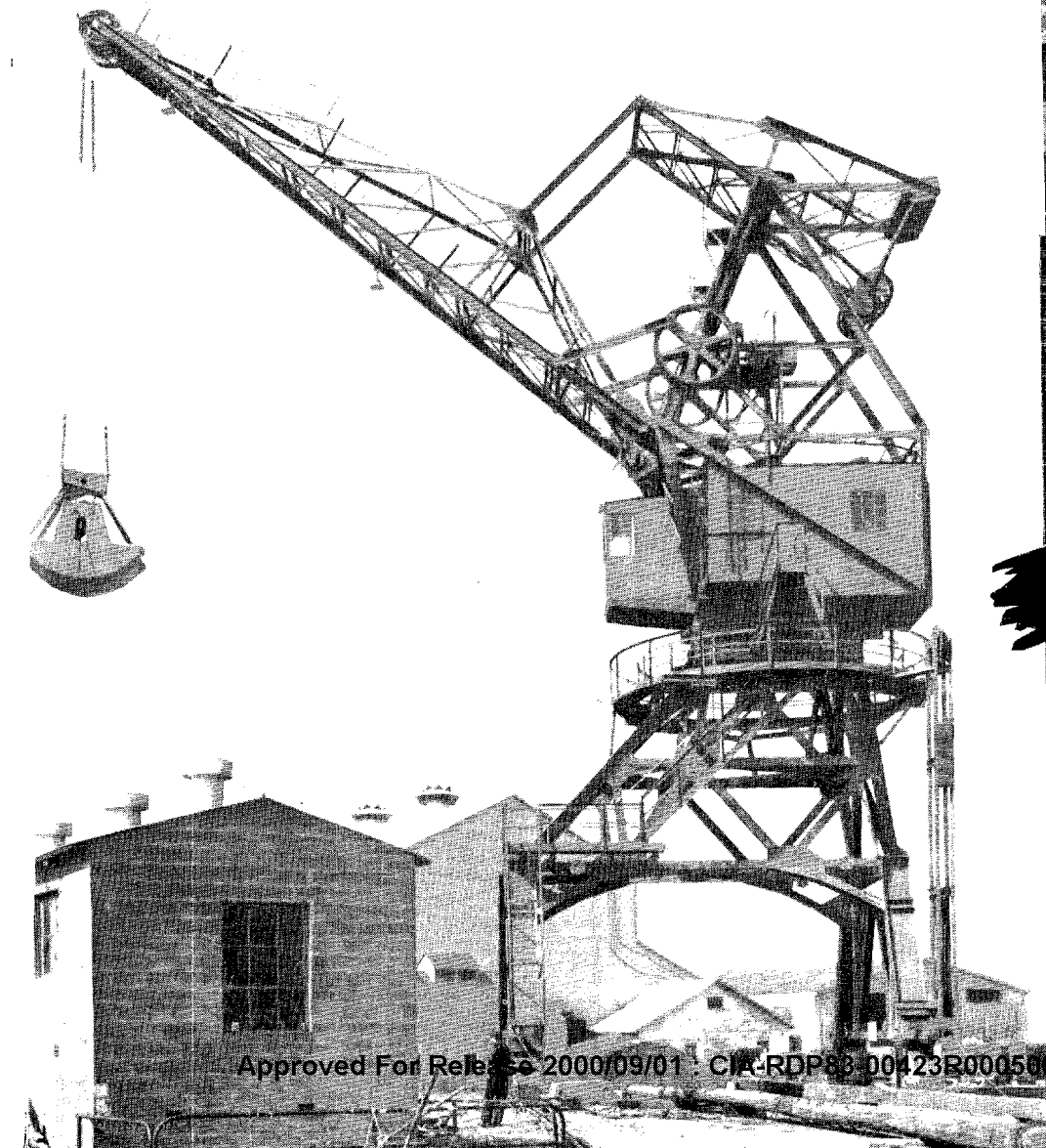
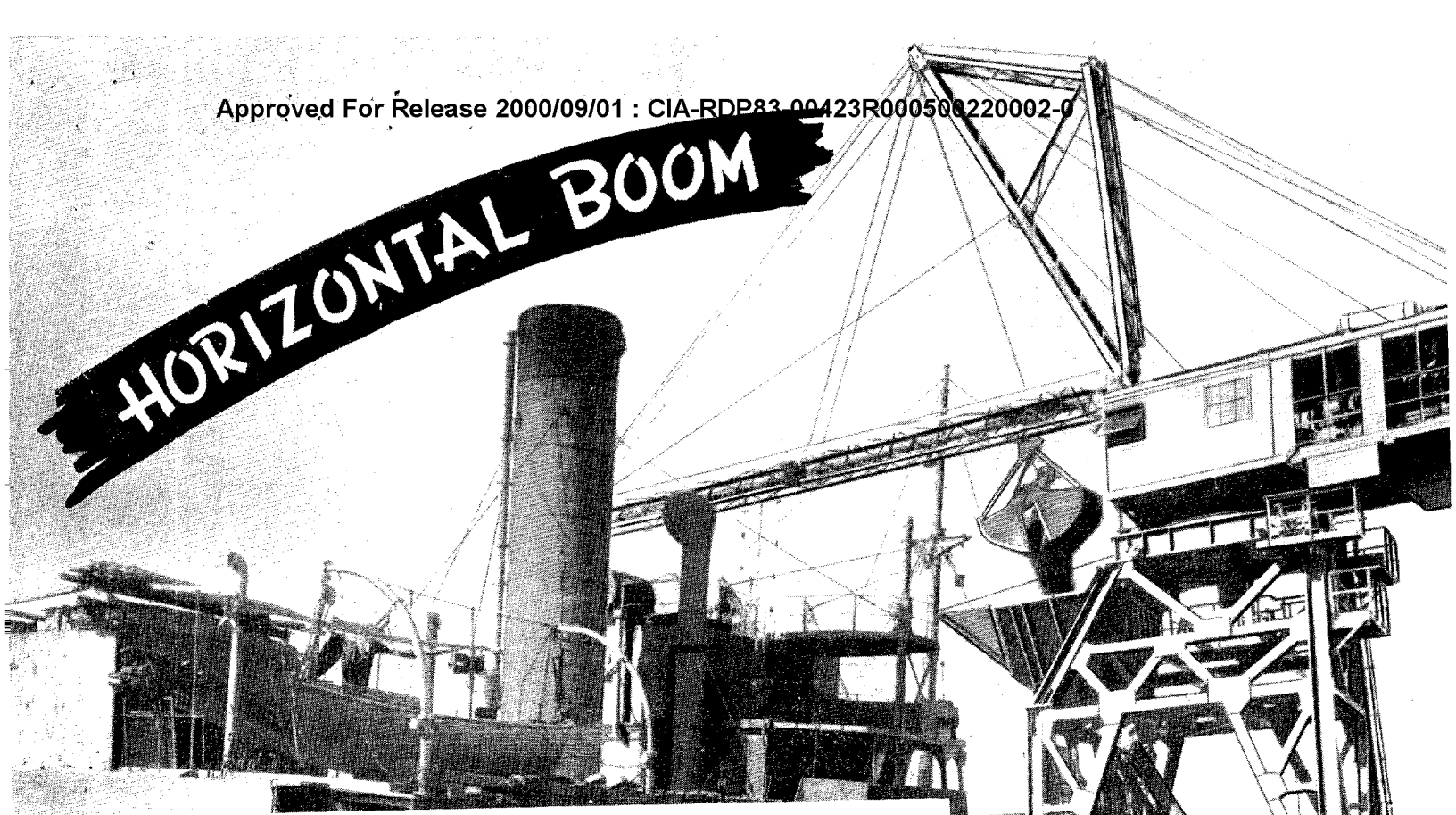


SELF PROPELLING

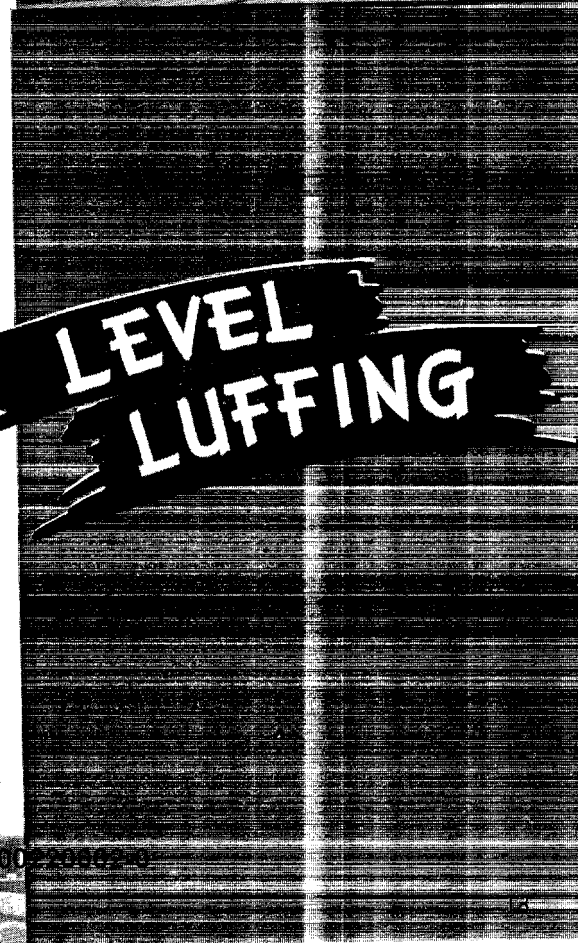
STATIONARY



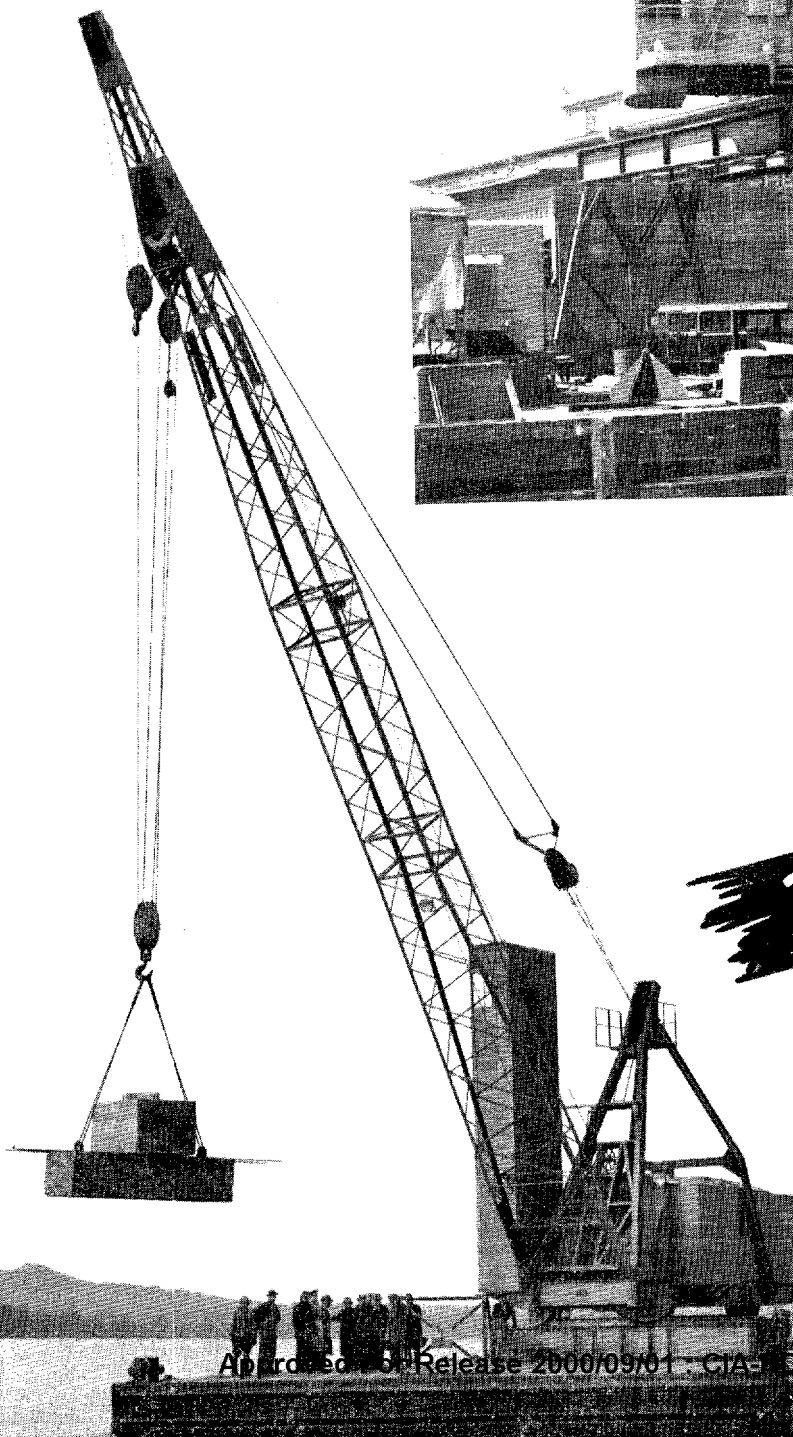
**HORIZONTAL BOOM**



**LEVEL  
LUFFING**



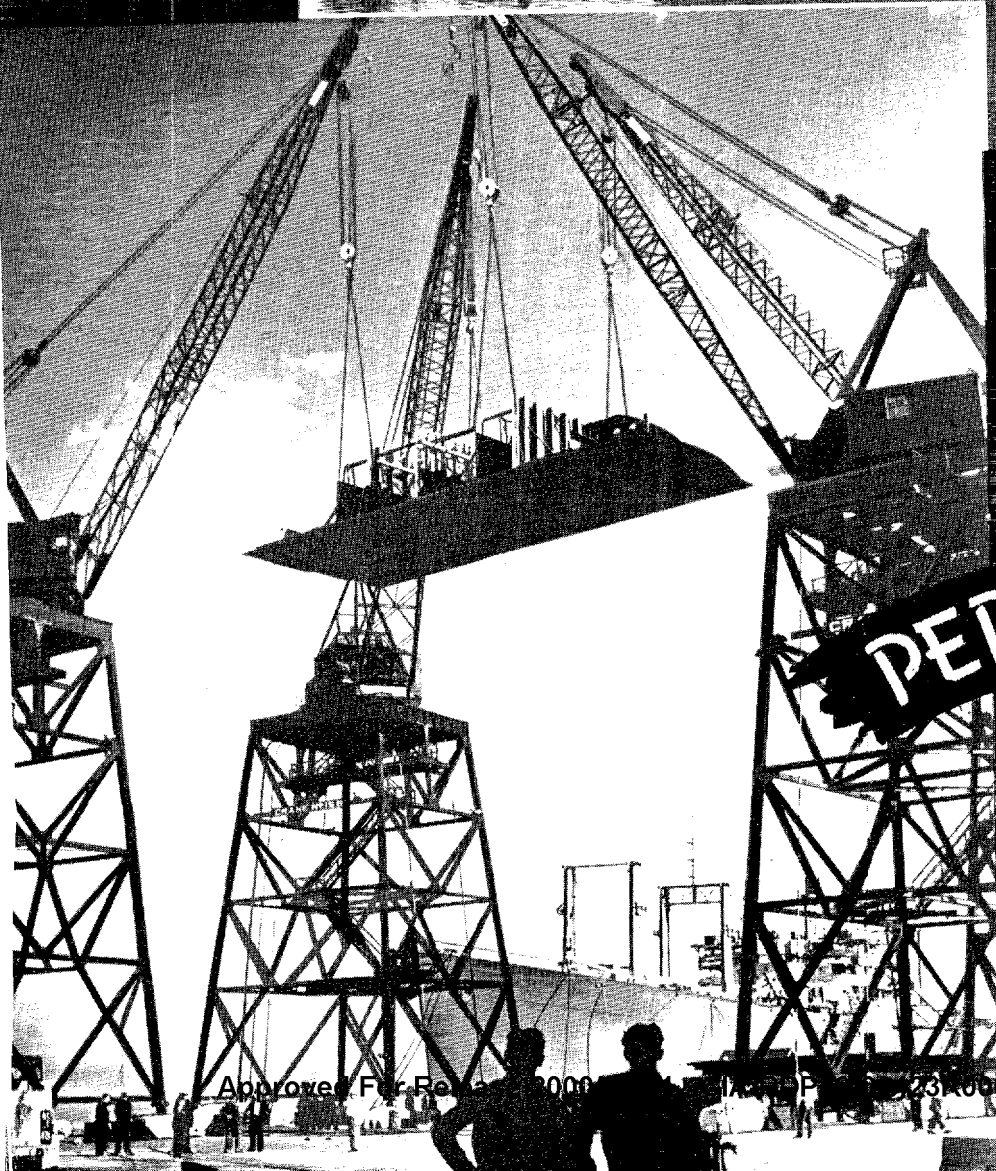
**GANTRY MOUNTED**



**BARGE MOUNTED**



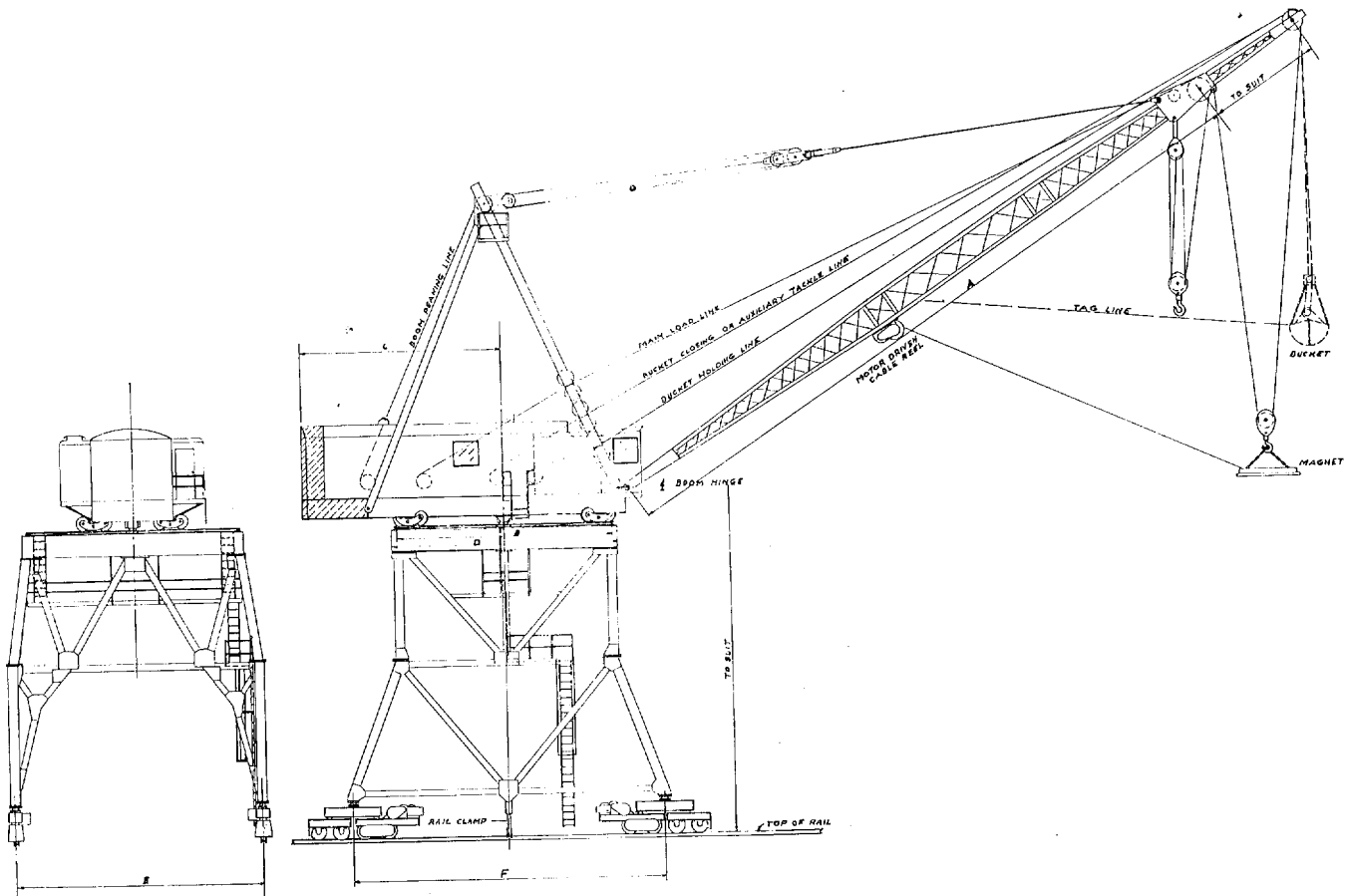
**GOOD  
TEAM WORK**



**PERFECT CONTROL**



# CLYDE WHIRLEY SPECIFICATION DATA



MODEL		6	10	14	17	20
Maximum length of boom, ft.	A	60	90	100	110	120
Diameter of rail circle, ft.	B	6	10	14	17	20
Tail swing, ft.	C	14	18	20	22	24
Width of lower frame, ft.-in.	D	7-0	10-6	14-6	17-6	20-6
Minimum track centers, ft.	E	6	10	14	17	20
Center to center trucks, ft.	F	15	20	26	29	36

MODEL		24	S24	28	S28	
Maximum length of boom, ft.	A	130	130	140	140	
Diameter of rail circle, ft.	B	24	24	28	28	
Tail swing, ft.	C	26	26	28	28	
Width of lower frame, ft.-in.	D	24-6	24-6	28-6	28-6	
Minimum track centers, ft.	E	24	24	28	28	
Center to center trucks, ft.	F	36	36	40	40	



**CLYDE WHIRLEY CAPACITY CHART**

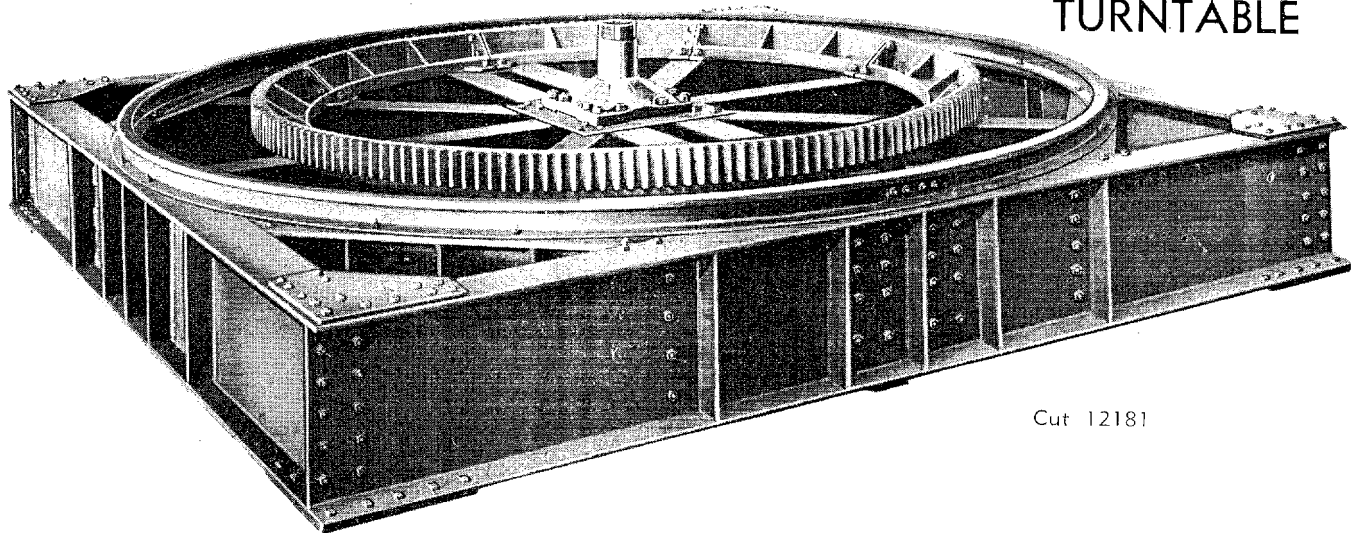
	MODEL 6			MODEL 10			MODEL 14			MODEL 17			MODEL 20		
	BOOM LENGTH			BOOM LENGTH			BOOM LENGTH			BOOM LENGTH			BOOM LENGTH		
	40	50	60	50	70	90	60	80	100	70	90	110	80	100	120
20	25200	<b>24700</b>	24200	40800	<b>40000</b>										
25	20200	<b>19700</b>	19200	32100	<b>31300</b>	30500	63000	<b>62000</b>							
30	16700	<b>16200</b>	15700	25500	<b>14700</b>	23900	51300	<b>50300</b>	49300	66400	<b>65000</b>		86800	<b>85000</b>	
35	14200	<b>13700</b>	13200	20300	<b>19500</b>	18700	42300	<b>41300</b>	40300	56400	<b>55000</b>	53600	71400	<b>69700</b>	67900
40	12200	<b>11700</b>	11200	16500	<b>15700</b>	14900	35500	<b>34500</b>	33500	48000	<b>47000</b>	45600	61700	<b>60000</b>	58300
45		<b>10200</b>	9700	13800	<b>13000</b>	12200	30300	<b>29300</b>	28300	42300	<b>41000</b>	39700	54100	<b>52500</b>	50800
50		<b>9000</b>	8500	11800	<b>11000</b>	10200	26000	<b>25000</b>	24000	37800	<b>36500</b>	35200	48600	<b>47000</b>	45400
55			7500		<b>9500</b>	8700	22300	<b>21300</b>	20300	33800	<b>32500</b>	31200	43800	<b>42300</b>	40700
60			6600		<b>8100</b>	7300	19300	<b>18300</b>	17300	30500	<b>29300</b>	28100	39800	<b>38300</b>	36800
65					<b>6900</b>	6100		<b>16000</b>	15000	27700	<b>26500</b>	25300	35900	<b>34500</b>	33000
70					<b>6000</b>	5200		<b>14300</b>	13300	25200	<b>24000</b>	22800	33100	<b>31700</b>	30200
75						4400		<b>12700</b>	11700	22400	<b>21200</b>	20000	30600	<b>29300</b>	27800
80						3600		<b>11500</b>	10500		<b>19500</b>	18400	28200	<b>26900</b>	25300
85						3000			9300		<b>17500</b>	16500	26000	<b>24700</b>	23100
90						2500			8100		<b>16000</b>	15000		<b>22600</b>	21000
95									7000		<b>14800</b>	13600		<b>20700</b>	19000
100									6300			12300		<b>18900</b>	17200
105												11100		<b>17200</b>	15500
110												10000			14000
115												9100			12500
120															11200
125															10000
130															
135															
140															
145															
150															

	MODEL 24			MODEL S24			MODEL 28			MODEL S28		
	BOOM LENGTH			BOOM LENGTH			BOOM LENGTH			BOOM LENGTH		
	90	110	130	90	110	130	100	120	140	100	120	140
20												
25												
30												
35	101800	<b>100000</b>										
40	86700	<b>85000</b>										
45	76200	<b>74500</b>	82000	142000	<b>138000</b>	134000	116700	<b>115000</b>		146600	<b>145800</b>	
50	68300	<b>66700</b>	71600	120000	<b>117000</b>	114000	106700	<b>105000</b>	102000	135000	<b>133400</b>	130500
55	61600	<b>60000</b>	63900	103500	<b>100200</b>	97000	97400	<b>95700</b>	92700	123900	<b>122400</b>	119500
60	56200	<b>54700</b>	57300	90500	<b>87500</b>	84500	88900	<b>87200</b>	84300	114800	<b>113300</b>	110500
65	51500	<b>50000</b>	52100	79400	<b>76500</b>	73600	81700	<b>80000</b>	77100	106000	<b>104500</b>	101700
70	47100	<b>45800</b>	47500	70500	<b>67800</b>	65000	75500	<b>73800</b>	71000	98300	<b>96800</b>	94000
75	43700	<b>42300</b>	43100	63400	<b>60600</b>	58000	69900	<b>68300</b>	65500	90800	<b>89300</b>	86000
80	40500	<b>39000</b>	39600	58800	<b>55800</b>	53000	64800	<b>63300</b>	60500	84500	<b>83100</b>	80300
85	37400	<b>36200</b>	36400	54200	<b>51700</b>	49250	60400	<b>59000</b>	56300	78900	<b>77500</b>	74800
90	34600	<b>33500</b>	33600	50700	<b>47800</b>	45000	56500	<b>55100</b>	52400	73900	<b>72500</b>	69800
95	32000	<b>31000</b>	30900	47000	<b>44500</b>	42000	52700	<b>51300</b>	48600	69200	<b>67800</b>	65200
100		<b>28600</b>	30900	44000	<b>41800</b>	39000	49000	<b>47700</b>	45000	65000	<b>63700</b>	61100
105		<b>26300</b>	28400		<b>38400</b>	36400	45600	<b>44300</b>	41600	61100	<b>59800</b>	57200
110		<b>24100</b>	26000		<b>36300</b>	33800	42300	<b>41000</b>	38400	57300	<b>56000</b>	53600
115		<b>22000</b>	23800		<b>33800</b>	31600	39200	<b>37900</b>	35300	53900	<b>52600</b>	50000
120		<b>20000</b>	21600		<b>31400</b>	29000		<b>34900</b>	32500		<b>49100</b>	46500
125			19500		<b>29000</b>	26800		<b>32000</b>	29700		<b>46000</b>	43400
130			17600			25000		<b>29500</b>	27200		<b>43000</b>	40500
135			15800			22800		<b>27000</b>	24800		<b>40000</b>	37600
140			14100			21000			22400			34900
145			12500						20200			32400
150									18200			30000
									16500			27700

The above capacities are conservative ratings based on use of normal counterweight and with allowance for clam shell duty impact. Heavier loads may be handled by installing additional counterweight.

# CLYDE WHIRLEY *Advantages . . . . .*

## TURNTABLE



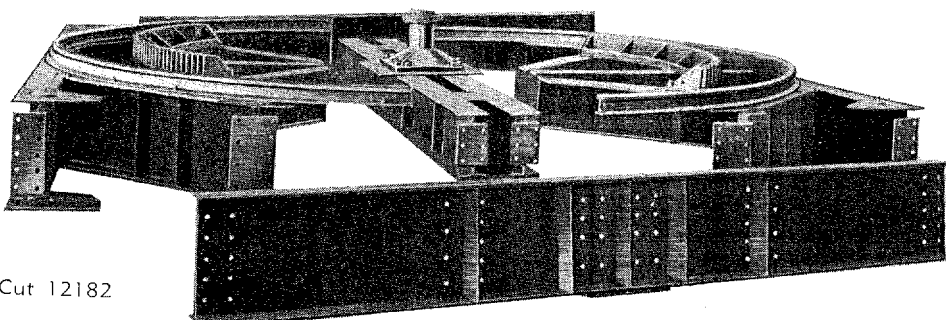
Cut 12181

Rigid turntable frame designed to withstand all combinations of loadings and is suitable for any type of mounting.

Frame sectionalized to facilitate shipment and easy re-assembly in the field.

Rail circle, for rotating carriages, is supported under entire length by heavy main side and diagonal beams.

Heavy duty 2-section rail circle accurately rolled to proper diameter and joined by splice bars for smooth operation.



Cut 12182

VIEW SHOWING HOW  
TURN TABLE FRAME IS  
SECTIONALIZED.

# CLYDE WHIRLEY *Advantages . . . . .*

## EQUALIZED WHEEL CARRIAGE

ON ROTATING FRAME

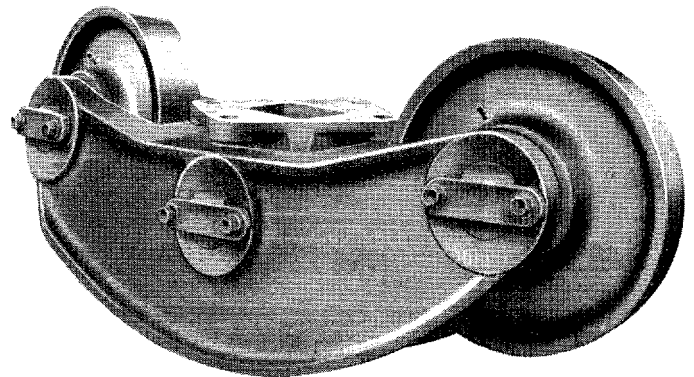
Only Clyde's equalized wheel arrangement permits definite determination of wheel loads. Rotating structure with maximum load is always supported by at least four, heavy-duty roller bearing wheels.

Greater economy through less maintenance.

- Only eight wheels to service. Single wheel can be replaced if necessary without changing load distribution on wheels.

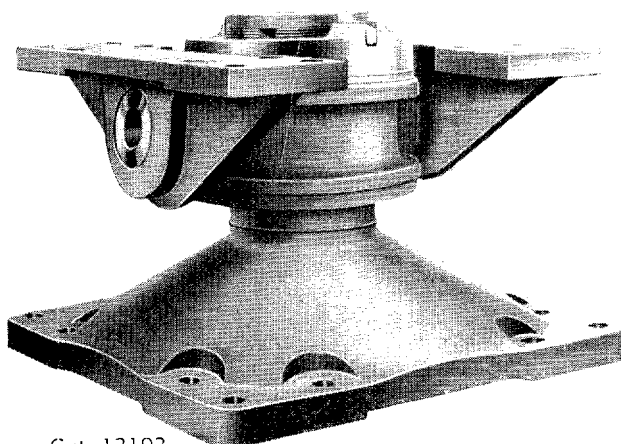
Tapered rims of wheels provide true rolling to

- rail circle diameter . . . no slippage of wheels . . . practically no wear.



EQUALIZED WHEEL CARRIAGE

Cut 12191



Cut 12192

CENTER PIN ASSEMBLY

## CENTER PIN ASSEMBLY

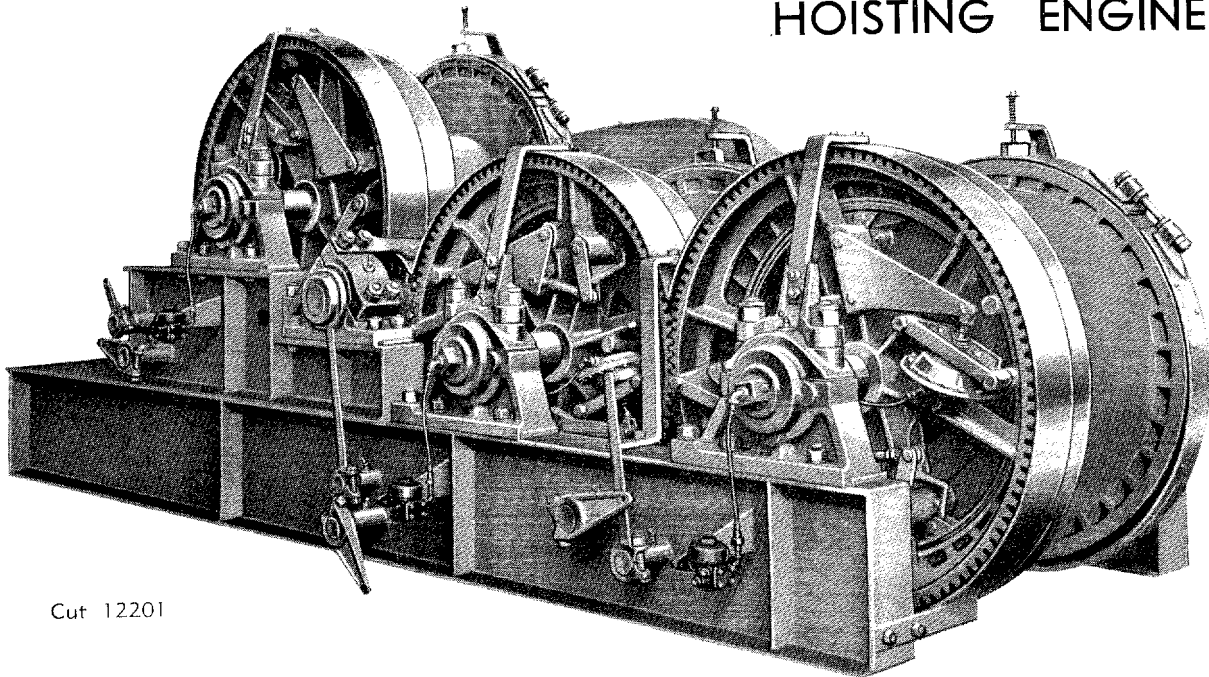
- Self-aligning trunnions eliminate binding and bending stresses and assures smooth, easy swinging.

- Tubular center pin accommodates electric wiring or steam piping between rotating structure and propel trucks.

- Heavy screw collar with locking bar safely resists unseating of rotating structure if Whirley is overloaded.

# CLYDE WHIRLEY *Advantages . . . . .*

## HOISTING ENGINE



Cut 12201

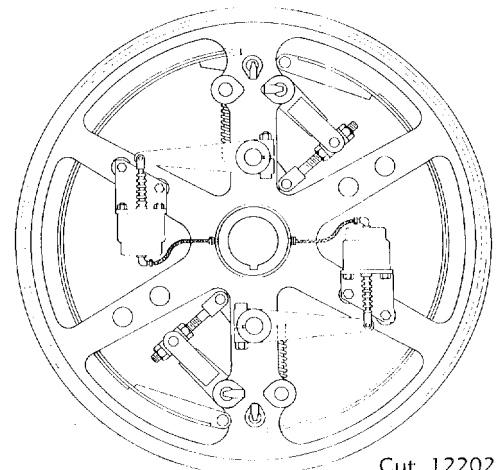
- Specially designed for Whirley service to afford better performance, easier operation and increased safety.
- Drums are narrow to provide better cable spooling.
- Hoist is narrowed to permit machinery to be shipped intact in cab to reduce field assembly time.
- Internal band friction clutches permit the use of double brake bands for extra safety and prolonged brake wear.
- Clutches operated by air through variable pressure valves.

Clyde band friction clutches are actuated so easily full capacity loads require practically no effort.

Internal bands allow larger friction diameters for greater efficiency and easier operation.

Clyde's internal bands allow outside friction surface to dissipate heat more readily than external bands.

Engagement and release is smooth and positive and allows perfect load control. Simple and fast adjustment.

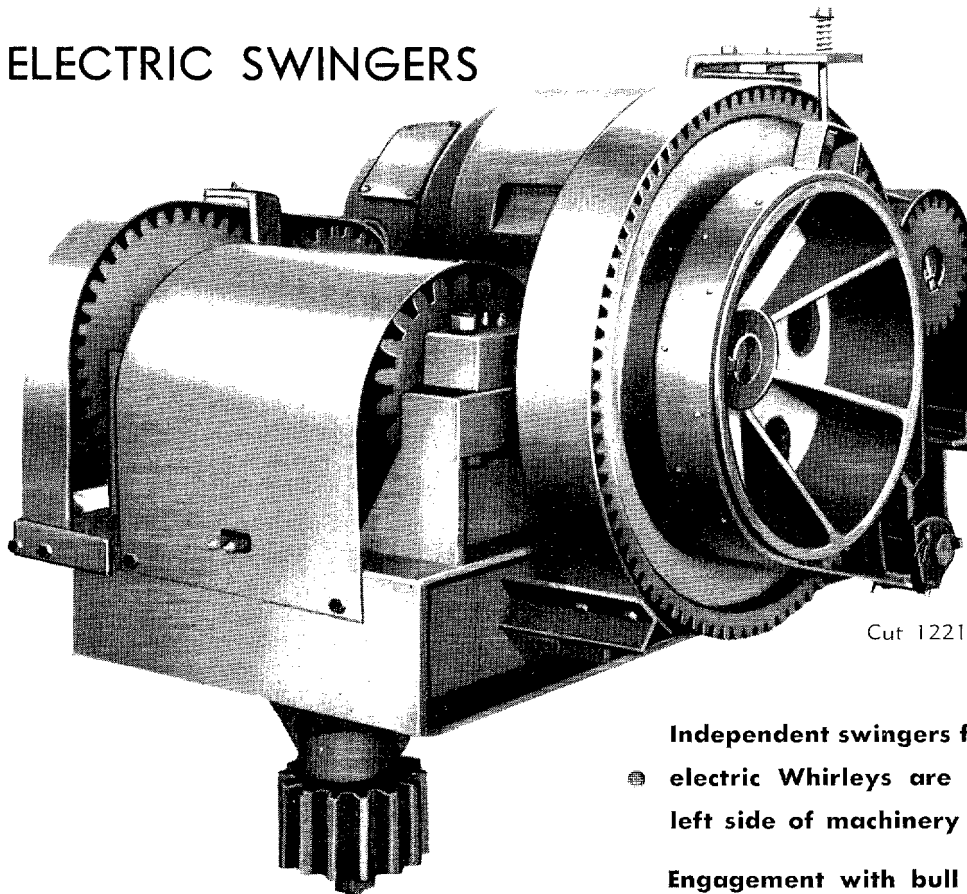


Cut 12202



# CLYDE WHIRLEY *Advantages . . . . .*

## ELECTRIC SWINGERS



Cut 12211

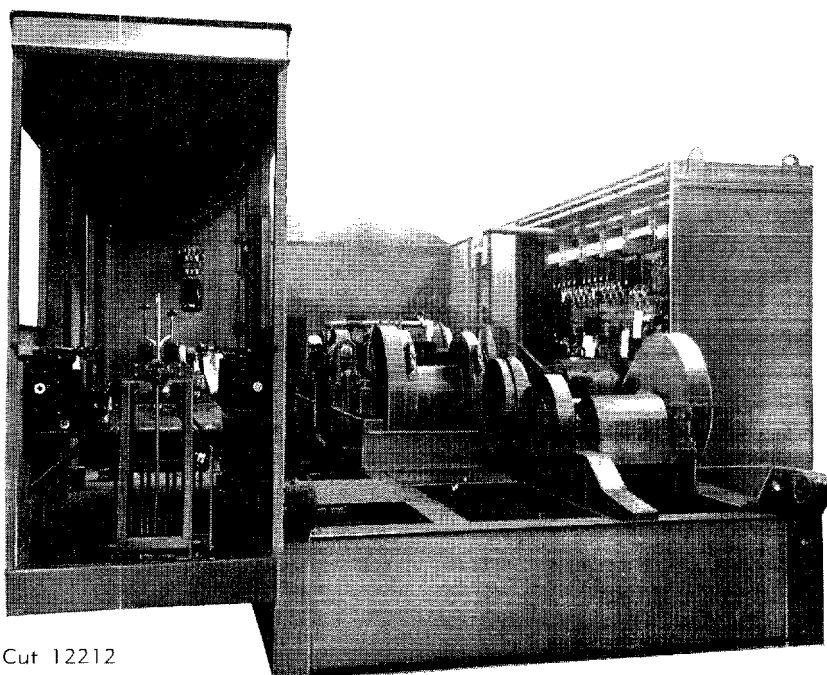
Independent swingers for electric and diesel-  
● electric Whirleys are mounted forward at left side of machinery deck.

Engagement with bull gear is in region of  
● maximum roller path loading to localize effect of rotational inertia.

All swinging operations regulated by re-  
● versing drum type controller or full magnetic control.

● Foot operated brake is banked to operator's position.

● Steam Whirleys have double cylinder, horizontal steam swingers operated through reversing throttle valve.

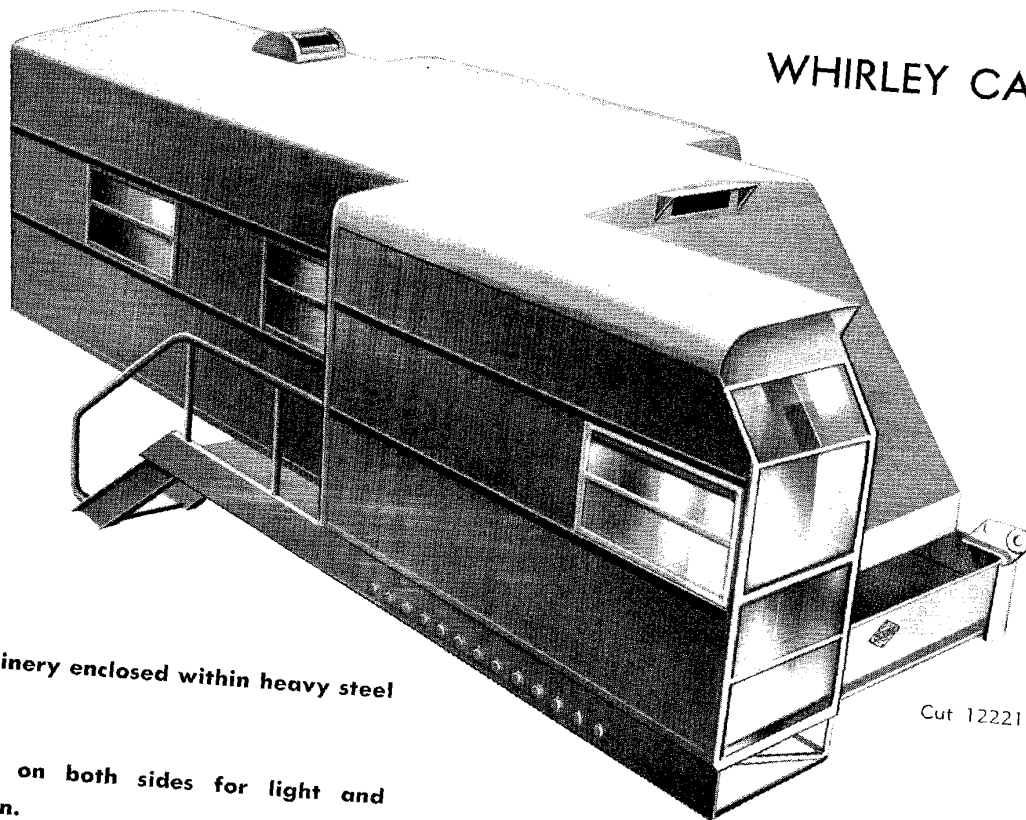


Cut 12212

◆ VIEW OF MACHINERY CAB SHOWING ENGINES AND CONTROLS.

# CLYDE WHIRLEY *Advantages . . . . .*

## WHIRLEY CAB



Cut 12221

• All machinery enclosed within heavy steel cab.

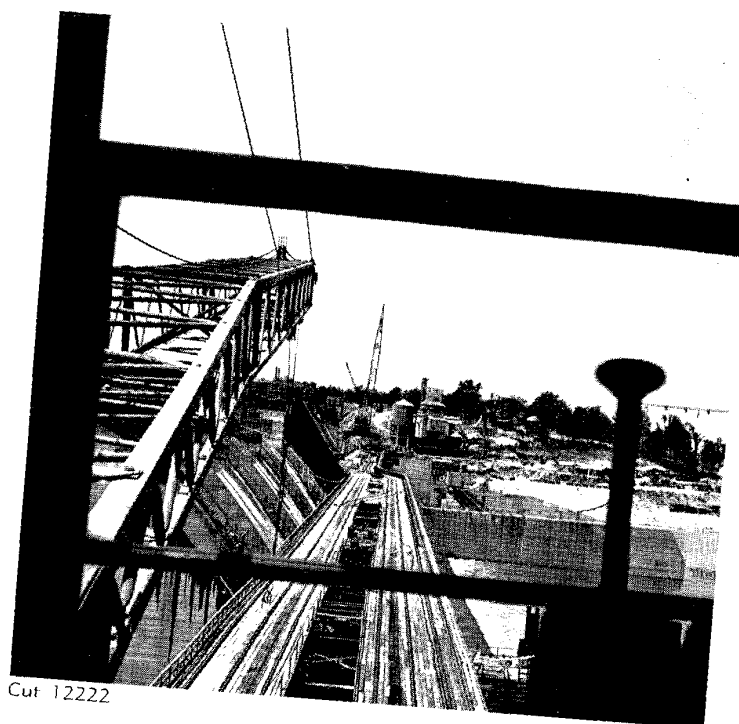
• Windows on both sides for light and ventilation.

• Operating machinery shipped intact in cab for economy in erection.

• Operator's cab and electrical control cab easily field bolt to main cab.

• Safety platform, stairs and railing are furnished at cab exit.

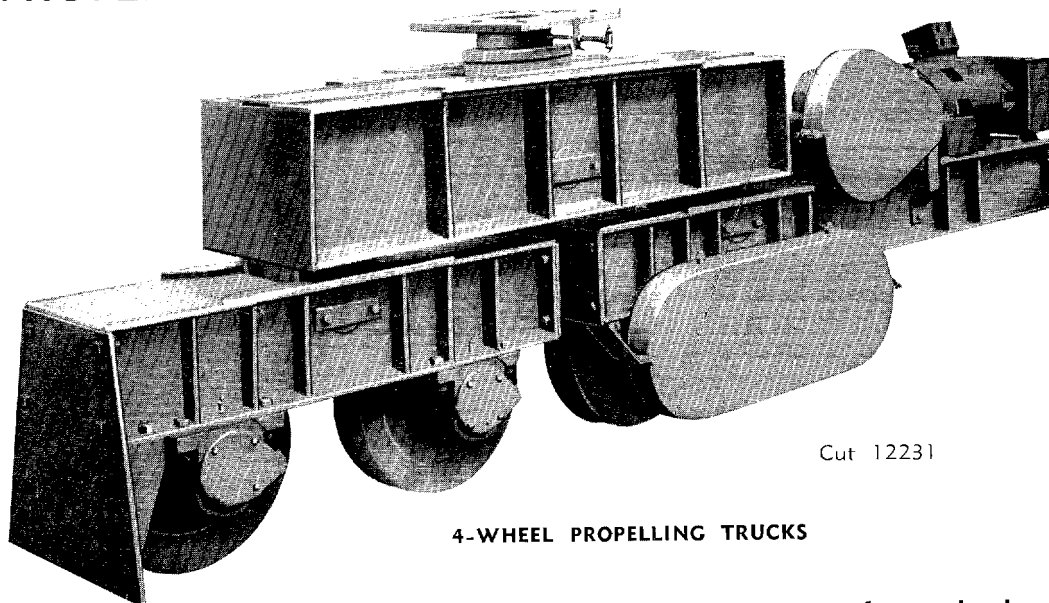
VIEW FROM OPERATOR'S POSITION SHOWING UNOBSTRUCTED VIEW OF BOOM AND LOAD TACKLE.



Cut 12222

# CLYDE WHIRLEY *Advantages . . . . .*

## PROPELLING TRUCKS



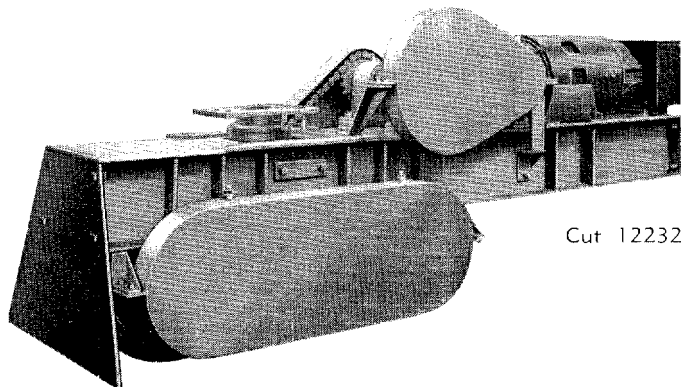
Cut 12231

4-WHEEL PROPELLING TRUCKS

Two or four wheel propelling trucks available, depending upon track condition and wheel loads.

Four-wheel trucks provided with equalizing frame.

For use on curved tracks, trucks are supplied with swiveling trunnion.



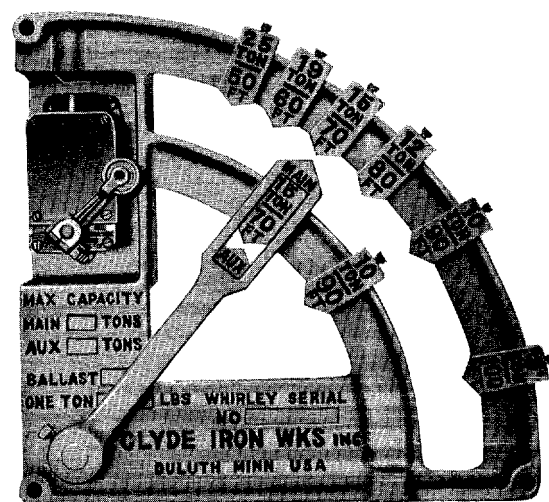
Cut 12232

2-WHEEL PROPELLING TRUCKS

## BOOM INDICATOR

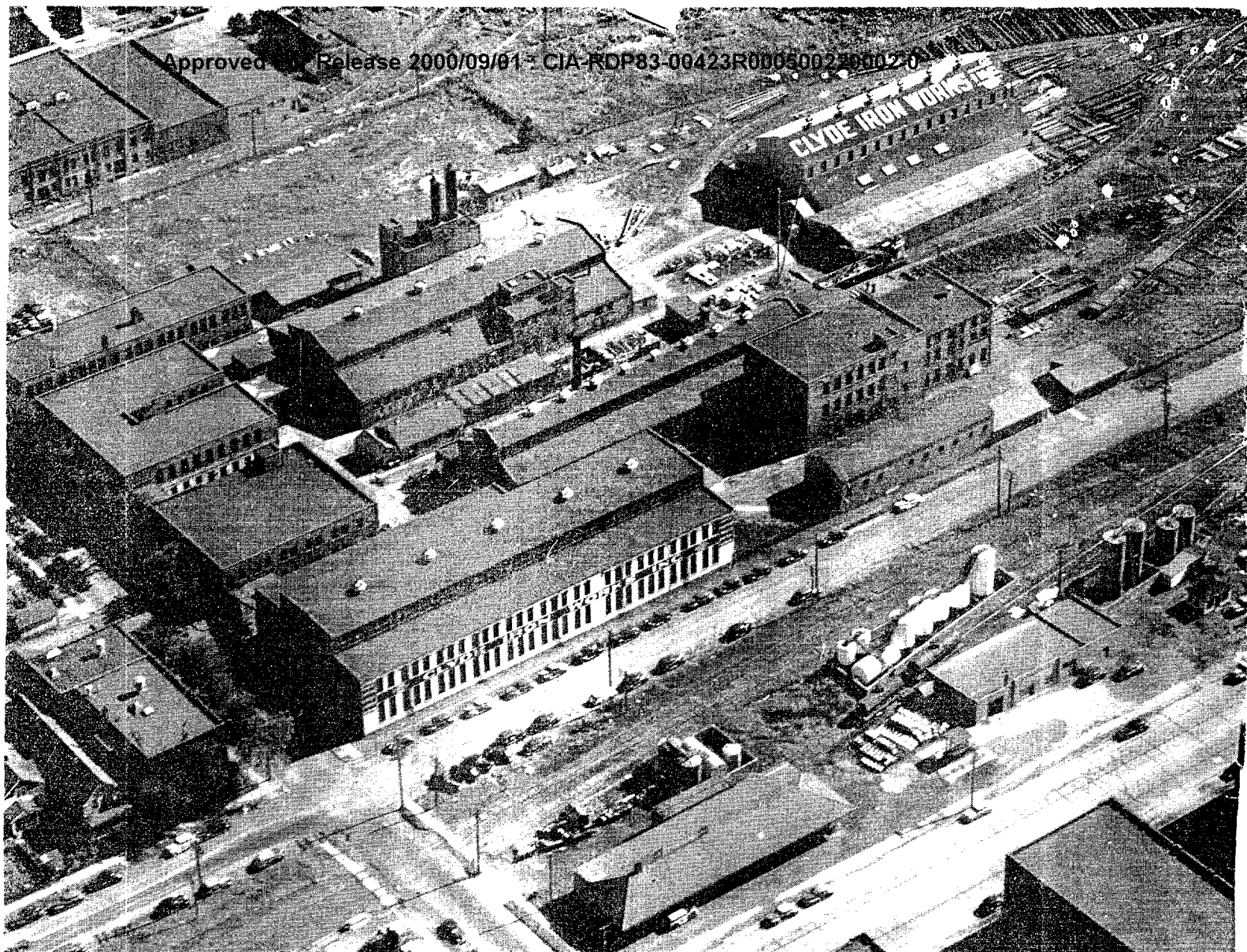
All Clyde Whirleys equipped with boom indicator.

Gives operator constant radius of boom load and capacity at that radius.



Cut 12233





## **CLYDE IRON WORKS, INC.**

Duluth 1, Minnesota

MANUFACTURER OF

HOISTS . . DERRICKS . . WHIRLEYS . . CAR PULLERS . . HANDI-  
CRANES . . BUILDERS TOWERS . . ROLLERS . . HAND POWERS  
DREDGE & DOCK EQUIP. . . LOGGING MCHY.

*Subsidiary of Barium Steel Corp.*